AMENDMENTS TO THE SPECIFICATION

Please correct the paragraph beginning at page 2, line 23, as follows:

In general, in X-ray illumination, X-rays transmitted through the human body is exposed to a film based on ~~so as to~~ intensities of transmitted X-rays. On the contrary, in digital radiography (digital X-ray inspection apparatus), intensities of X-rays transmitted through a person to be examined are measured with the use of a flat panel detector in which radiation detectors are arranged in an array, instead of the film. The digital radiography can digitally store intensities of transmitted X-rays and can carry out image processing in comparison with a conventional X-ray photograph.

Please correct the paragraph beginning at page 8, line 5, as follows:

Explanation will be ~~herfeinbelow~~ made of a basic concept of the present invention which can attain both tasks with a specific instance shown in Figs. 1A to 2C. Figs. 1A to 1C typically show a positional relationship between, for example, within a 6-row and 6-column array in which 36 radiation detectors 6 are arranged, the radiation detectors 6 and the shield members 8 in the collimator, as viewed from the shield member 8 side. The grid-like shield members 8 made of a radiation shield material. The grid-like shield members 8 can form a plurality of γ–ray passages 11 each having a cross-sectional area greater than that of each of the radiation detectors 6, the widths thereof in both X-axial direction (the longitudinal direction of a [[head]] bed 26 which will be described later) and the Y-axial direction (the direction orthogonal to the longitudinal direction of the head) each corresponding to a value twice as large as the width of each of radiation detectors. The cross-sectional area of each of the γ–ray passages 11 is substantially equal to a value corresponding to four cross-sectional areas of the

radiation detectors 6 arranged in a square shape. These shield members 8 are displaced in the X-axial direction from a state shown in Fig. 1A by a distance corresponding to the width of one radiation detector 6 (Refer to Fig. 1B). Thereafter, the shield members 8 are displaced in the Y-axial direction by a distance corresponding to one radiation detector (Refer to Fig. 1C). With states shown in Figs. 1A, 1B and 1C, γ–rays emitted from a person to be examined to whom a radiopharmaceutical has been dosed are successively detected by the radiation detectors 6 at set time intervals.

Please correct the paragraph beginning at page 9, line 10, as follows:

An increase in the sensitivity of detection of γ-rays in [[at]] the shield members 8, that is, an increase in the number of γ–rays which are detected by a single radiation detector 6 will be verified. In order to simplify this problem, it is estimated that a γ–ray source 38 and the collimator [[is]] are arranged one-dimensionally ~~arranged~~, an increase in the number of γ–rays detected by the radiation detector 6 will be considered in the present invention. In this case, if an N number of γ–rays which can be incident upon one radiation detector in a statistically long time that is, in a time T (sec) are produced per solid angle, γ–rays are incident upon the radiation detector 6E by a number N, at every T sec in grid-like shield members 8D (shown in Fig. 2C) in a conventional collimator. The cross-sectional area of each of the γ–ray passages defined by the shield members 8D is substantially equal to that of the single radiation detector. Accordingly, with the shield members 8D, the γ–rays are incident upon the radiation detector 6E by a number of about 2N within a time of 0 to 2T sec. It is noted here that the γ–ray source 38 is a single photon emission nuclide contained in a radiopharmaceutical accumulated in an affected part.

Please correct the paragraph beginning at page 10, line 9, as follows:

After the positional relationship between the shield members 8 and the radiation detectors comes into a condition shown in Fig. 2A (the state shown in Fig. 1A), γ–rays emitted from the γ–ray source 38 are incident upon radiation detectors 6E, 6F facing one of the γ–ray passages 11 by a number of about N, respectively thereto within a time from 0 to T sec. After T sec. elapses, the shield members 8 are displaced in the direction of the arrow 55 (X-axial direction) by a distance corresponding to one radiation detector 6. At this time, both radiation detectors 6D, 6E are faced to two γ–ray passages 11, (Fig. 2B). In conditions shown in Figs. 2B and 2C, γ–rays from the γ–ray source 38 are incident upon the radiation detectors 6D, 6E, by a number of about N, respectively. Accordingly, with the use of the [[shied]] shield members 8, the γ–rays can be incident upon the radiation detectors by a number of about 4N. Thus, with the use of the collimator having a plurality of γ–ray passages 11 each having a cross-sectional area so as to face a plurality of radiation detectors 6D, 6E, the γ–rays are incident upon [[by]] a number larger than a number of γ–rays incident upon a collimator with γ–ray passages each having a cross-sectional area equal to that of a cross-sectional area of a radiation detector, the number being multiplied by about n which is equal to a ratio between the cross-sectional area of each of the γ–ray passages in the collimator and the cross-sectional area of each of the radiation detector. The cross-sectional ~~cross-sectionals~~ of both γ–ray passage and radiation detectors which are described in this specification are those in a direction orthogonal to the center axis of each of the γ–ray passages. The shield members 8 shown in Fig. 1A, have the γ–ray passages 11 each having a cross-sectional area which is four times as large as that of a single radiation detector 6, and accordingly, the sensitivity of detection of γ–rays is four times larger than ~~larges as that of~~ the shield member 8D shown in Fig. 2C.

Please correct the paragraph beginning at page 15, line 16, as follows:

The detector holding members 3 of the radiation detecting devices 2A, 2B are mounted at the inner surface of an annular coupling member 17 and are coupled to each other by the coupling member 17. Projections 52 being formed, and ~~formed being~~ projected from, the outer peripheral part of the coupling member 17 in the longitudinal direction of the bed 6 are engaged in a groove 20 formed in a support member 19 which is secured to the floor of an inspection room. The coupling member 17 can be moved circumferentially through the intermediary of the protrusions [[20]] 52 which is guided in the guide groove 20. A motor 21 is located in a space defined in the support member 19 and is mounted to the latter. A pinion 22 is coupled to the rotary shaft 36 of the motor 21, and is meshed with a rack 18 formed in the outer peripheral surface of the coupling members 17.

Please correct the paragraph beginning at page 17, line 26, as follows:

The motor moving device 51 for moving the motor 50 along the axial direction of the γ ray passage 11 is configured in such a way that for example a nut is provided to a distal end of a hollow rod attached to the motor 50, and a screw rod meshed with the nut is coupled to a rotary shaft of a motor (which is not shown) in the motor moving device 51 through the intermediary of a [[sped]] speed reducing mechanism. The nut is engaged with a detent member at its outer periphery and accordingly, is guided by the detent member in the axial direction of the γ ray passage 11. The motor moving member for moving the motor 58 has a configuration similar to that mentioned above.

Please correct the paragraphs at page 19, line 21 to page 21, line 9, as follows:

The γ ray detection signals delivered to the γ ray detection signal processing device 27 abruptly rise up, and thereafter, approach zero exponentially. Thus, they are subjected at first to wave-shaping which is made for smoothly processing the γ ray detection signals. The γ ray detection signals are converted into γ ray detection signals having a gaussian distribution wave form. It is noted here that the γ rays emitted from the radiopharmaceutical scatter at a relatively high probability within the human body of the person 33 to be examined. The scattering γ rays which have been detected by the radiation detectors 6 have not positional information as to the affected part 34 in which the radiopharmaceutical is accumulated, but only have information as to scattering positions. These scattering γ rays as noise as to a specific position of the affected part are removed by the γ ray signals processing devices 27. That is, since the scattering γ rays have a low energy, they are removed by removing γ ray detection signals having an energy lower than a predetermined energy set value with the use of a filter, thereby it is possible to prevent the γ ray detection signal process devices 27 from counting the scattering γ rays.

The γ ray detection signals corresponding to γ rays which have been emitted from the radiopharmaceutical accumulated in the affected part 34 and which have not scattered in the human body (that is, non-scattering γ rays) have an energy higher than the above-mentioned energy setting value, and accordingly, they are not removed by the [[filer]] filter, and are therefore counted by the γ ray detection signal processing devices 27. The γ ray detection signal processing devises 27 adds positional data exhibiting positions of the radiation detectors 6 connected to the former, to the thus counted data, that is, the counted data and the position data are delivered. The tomogram forming device 29 receives therein the counted data and the position data of the radiation detectors 6 delivered from the γ ray detection signal processing devices

27, and stores these data in the memory device 30. Although detailed description thereto will be omitted, the tomogram forming device 29 creates a tomogram of the affected part 34 with the use of the counted data and the position data.